REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

In the Office Action, claims 1 and 11-12 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,635,569 (Ameen). The "et al." suffix is omitted in a reference name.

The Applicant respectfully **disagrees** with the Examiner.

In each of claims 1 and 11-12, the Applicant claims, inter alia, the step of generating plasma in the apparatus that includes hydrogen and nitrogen and argon as in claims 1 and 12 or nitrogen and hydrogen as in claim 11, all of which generated plasmas are to –remove a residual remaining in a reaction tube of the reaction unit–. That is, the plasma (based on hydrogen/nitrogen/argon or a combination of predetermined two elements) generated by the presently claimed invention **cleans** the reaction chamber by removing residual chlorine-containing gases that might remain inside.

However, Ameen does not teach or suggest this claimed invention.

Ameen as understood mentions some use of a hydrogen/argon plasma, but the mention of these type of plasma in Ameen is not sufficient to provide prima facie case of obviousness.

Ameen teaches two methods of cleaning a Ti-PECVD reactor. One method disclosed by Ameen in a "wet cleaning" and break-in process. (See Ameen, column 7, lines 64-65.) The second method disclosed by Ameen is an in situ cleaning and break-in. (See Ameen, column 8, line 66.)

In the wet cleaning and break-in process, the reactor is subjected to a

"conventional wet cleaning process" followed by a process wherein the reactor is closed, purged and pumped to a vacuum. Thereafter, a mixture of hydrogen and argon gas is introduced into the reactor and an H_2/Ar plasma is formed. The H_2/Ar plasma is operated to remove remaining contaminants. (See Ameen, column 7, line 65- column 8, line 10.)

Ameen describes the in situ cleaning and break-in process as follows: "[T]he reactor is kept sealed and in a vacuum state and subjected, with wafers removed, to a conventional in situ cleaning process... in which a cleaning gas such as NF_3, ClF_3 or Cl_2 is employed, typically with a plasma, to remove the deposited films from the reactor surfaces. **Following the in-situ cleaning process...** the reactor is subjected to the step... of generating an NH_3/H_2/Ar plasma...to remove any remaining cleaning gases and contaminants from the reactor." (See Ameen, column 9, lines 1-9.) (Emphasis added.) Thus, Ameen teaches the use of NF_3, ClF_3 or Cl_2 to clean a reaction chamber but it does not teach the use of either hydrogen/argon plasma or nitrogen/argon plasma to clean a reaction chamber, as pending claim 1 clearly requires.

Claim 1 recites that a hydrogen/argon plasma is used to remove residuals from the reaction unit. The residuals that remain the reaction unit are chlorine-containing gases that were used in the reaction unit during either an etching or deposition process but prior to cleaning.

As to claim 11, it recites the formation of a **nitrogen/argon plasma** to remove residual, chlorine-containing gases from a reaction unit wherein etching and deposition is carried out using chlorine containing gases. Ameen teaches the use NF_3, ClF_3 or Cl_2 as cleaning gases. Even though Ameen discloses NF_3 as a cleaning gas, the use of

NF_3 does not include the use of argon as claim 11 requires. Thus, Ameen does not teach or suggest the claimed use of a nitrogen/argon plasma to clean a reaction unit as claim 11 requires.

As to claim 12, it recites a **plasma that contains hydrogen, nitrogen and argon** and requires that the plasma is to "remove a residual remaining in a reaction tube," i.e., chlorine-containing compounds. Ameen does not teach the use of either hydrogen/argon or nitrogen/argon plasmas to clean a reaction chamber or tube.

At least for the reasons set forth above, claims 1 and 11-12 are now considered to overcome all grounds of obviousness rejections over Ameen. Withdrawal of the rejection is respectfully requested.

In the Office Action, claims 1 and 11-12 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent Application Publication No. 2004/013818 (Moon) in view of Ameen.

As already asserted in the last filed response, the earliest possible priority date that Moon is entitled to is July 19, 2002. As shown on the front page of the Applicant's published application, (KR 20002/007248 A1), and as stated in the Applicant's Declaration, under the provisions of 35 U.S.C. §119(a), the Applicant is entitled to July 12, 2002 as an effective filing date for this application. The Moon reference therefore does not qualify as prior art under 35 U.S.C. §102(e), because it was filed *after* the applicant's effective filing date.

In response to the Examiner's last Office, Action, the Applicant has attached hereto a Korean-to-English translation of the applicant's priority document, together with a sworn verification by Mr. Jong-Gueol Park as to the accuracy of the translation. As

stated in Mr. Park's verification, the translation of the priority document provided herewith is a true and complete translation thereof. Thus, under the provisions of 35 U.S.C. §119 and 37 C.F.R. §1.55, the Moon reference cannot be relied upon by the Examiner to reject the claims, because the Moon reference does not qualify as "prior art" under 35 U.S.C. §119(a).

For the reasons set forth above, the Applicant respectfully submits that pending claims 1 and 11-12 are allowable over Ameen, and further submits that Moon is not prior art under the provisions of 35 U.S.C. §119. Thus, reconsideration and allowance of the claims is respectfully requested.

Respectfully submitted,

Dated: July 6, 2006

Joseph P. Krause Reg. No. 32,578
Ladas & Parry LLP
224 South Michigan Avenue
Chicago, Illinois 60604
(312) 427-1300